

VOLUME 15 (2) 2026



# JOURNAL OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY (JAAT)



Journal of Agriculture and Agricultural Technology,  
Federal University of Technology, PMB 65, Minna,  
Niger State, Nigeria

ISSN 1597-5460





# Journal of Agriculture and Agricultural Technology (JAAT)



Journal of Agriculture and Agricultural Technology

JAAT 15 (2) 2026

ISSN: 1597-5460

## JOURNAL OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY

Vol. 15(2), 2026

ISSN: 1597 – 5460

**A Publication of School of Agronomy and Forestry Technology, School of Agricultural  
Management and Extension Technology and School of Food Science and Agricultural  
Technology  
Federal University of Technology, Minna**

**Copyright © Journal of Agriculture and Agricultural Technology 2026**

All rights reserved. No part of this publication may be reproduced, stored in any retrieval system, or translated in any form or by any means, electronic, mechanical photocopying, recording or otherwise without prior written permission of the Editors

## SECTION A — EDITORIAL BOARD

### 1. Prof. Olushola John Alabi

**Role:** Editor-in-Chief, JAAT **Position:** Professor of Animal Nutrition **Affiliation:** Department of Animal Production, Federal University of Technology, Minna, Nigeria **Contact:** shoal.alabi@futminna.edu.ng **ORCID:** 0000-0001-5956-962X **Google Scholar:** Dw-mMdsAAAAJ **Scopus:** 56053250400 **ResearchGate:** Alabi-John

**Expertise:** Poultry & rabbit nutrition; feed formulation; feed evaluation; precision agriculture; climate-smart agriculture. **Biography:** Professor Alabi is a leading scholar in sustainable livestock nutrition, alternative feed resources, nanotechnology in animal production, and functional feed additives. He has coordinated the EU-funded ABC BlendEd Programme and published extensively in high-impact journals.

### 2. Prof. Muhammadu Tajudeen Salaudeen

**Role:** Editorial Manager **Position:** Professor of Crop Production **Affiliation:** Department of Crop Production, FUT Minna **Contact:** mtsalaudeen@futminna.edu.ng **ORCID:** 0000-0003-1196-4254

**Expertise:** Plant virology; virus resistance screening; molecular diagnostics; AI in crop protection. **Biography:** Prof. Salaudeen is renowned for plant viral disease surveillance, epidemiology, and precision crop protection. His recent work includes AI-driven decision-support systems and autonomous robotics for weed and disease management.

### 3. Dr. Olaotan Abimbola Adediran

**Role:** Editorial Secretary **Position:** Associate Professor of Horticulture **Affiliation:** Department of Horticulture, FUT Minna **Contact:** o.adediran@futminna.edu.ng

**Expertise:** Abiotic stress physiology; vegetable production; seed physiology; climate-smart agriculture. **Biography:** Dr. Adediran is a crop physiologist with extensive contributions to sustainable horticulture, organic agriculture, and post-harvest management. She has supervised numerous students and served in leadership roles within national agricultural societies.

### 4. Dr. Agatha Itohan Oseghale

**Role:** Assistant Editorial Secretary **Position:** Associate Professor of Agricultural Economics **Affiliation:** Department of Agricultural Economics & Farm Management, FUT Minna **Contact:** itodine.agatha@futminna.edu.ng

**Expertise:** Resource economics; farm management; agribusiness; value chain development; climate-smart agriculture. **Biography:** Dr. Oseghale has over 14 years of experience in applied econometrics, impact evaluation, and donor-funded agricultural development projects. She has authored over 40 peer-reviewed publications.

### 5. Dr. Dorcas T. Ezekiel-Adewoyin

**Role:** Editorial Board Marketing Manager **Position:** Associate Professor of Soil Science **Affiliation:** Department of Soil Science & Land Management, FUT Minna **Contact:** eze.dorcas@futminna.edu.ng **ORCID:** 0000-0001-6523-8173

**Expertise:** Soil microbiology; ISFM; rhizobiology; climate-smart agriculture; biometrics. **Biography:** Dr. Ezekiel-Adewoyin has over two decades of experience in soil ecology and sustainable soil fertility management, with numerous publications and postgraduate supervision.

### 6. Dr. Rajan Sharma

**Role:** Editorial Board Member **Position:** Teaching Assistant (Food Technology) **Affiliation:** Punjab Agricultural University, India

**Expertise:** Food processing; cereal science; fermentation; starch & protein modification; millet technology. **Biography:** Dr. Sharma is a decorated food technologist with multiple national awards, over 50 publications, and eight books.

#### 7. Dr. Mofoluwaso Olufunmilola Ojo

**Role:** Editorial Board Member **Position:** Senior Lecturer, Food Science & Technology **Affiliation:** FUT Minna

**Expertise:** Food processing; preservation; product development; value addition. **Biography:** Dr. Ojo has 14 years of teaching and research experience and serves as reviewer and editorial board member for multiple journals.

#### 8. Dr. Kehinde D. Tolorunse

**Role:** Editorial Board Member **Position:** Senior Lecturer, Crop Production **Affiliation:** FUT Minna

**Expertise:** Crop breeding; yield stability; G×E interaction; seed systems; climate-smart farming. **Biography:** Dr. Tolorunse's research advances crop breeding programs for tropical agriculture, with extensive publications and postgraduate supervision.

#### 9. Prof. Thobela Louis Tyasi

**Role:** Editorial Board Member **Position:** Professor of Animal Breeding & Genetics **Affiliation:** University of Limpopo, South Africa

**Expertise:** Animal genomics; biometry; precision livestock farming; AI in animal production. **Biography:** Prof. Tyasi's work focuses on genetic improvement, phenotypic characterization, and community-based breeding programs.

#### 10. Musa Abdulmalik Adavize

**Role:** IT/Web Manager **Position:** Postgraduate Student **Affiliation:** Department of Crop Production, FUT Minna

**Expertise:** Plant breeding; data analysis; academic writing; graphic design. **Biography:** Musa is engaged in crop improvement research and scientific communication, contributing to JAAT's digital infrastructure.

#### 11. Dr. David Brown

**Role:** Editorial Board Member **Position:** Assistant Professor (Animal Science) **Affiliation:** University of Maryland Eastern Shore, USA

**Expertise:** Small ruminant nutrition; parasite management; biosecurity; forage systems. **Biography:** Dr. Brown's research bridges scientific discovery and practical livestock production, with emphasis on sustainable sheep and goat systems.

#### 12. Dr. Aliyu Baba Mohammed

**Role:** Editorial Board Member **Position:** Senior Agricultural Research Officer **Affiliation:** NCRI Badeggi, Bida, Nigeria

**Expertise:** Crop production; seed systems; rice value chain; climate-smart agronomy. **Biography:** Dr. Mohammed has 15 years of research and extension experience, contributing significantly to weed management and seed quality improvement.

#### 13. Dr. Prossy Isubikalu

**Role:** Editorial Board Member **Position:** Lecturer, Agricultural Extension **Affiliation:** Makerere University, Uganda

**Expertise:** Extension systems; innovation systems; experiential learning; rural development.  
**Biography:** Dr. Isubikalu contributes to regional development initiatives, including GO4IT and ABC Blended Mobility, and mentors postgraduate researchers.

## **SECTION B — ADVISORY BOARD**

### **1. Prof. Job N. Nmadu**

Agricultural Economist; former JAAT Editor-in-Chief; Fellow of NAAE and ASN. Expert in small farm efficiency, CGE modelling, and agricultural systems optimization.

### **2. Prof. Umar Sheshi Isah**

Professor of Agricultural Extension; Dean, School of Agricultural Management & Extension Technology, FUT Minna. Expert in technology adoption, rural development, and women in agriculture.

### **3. Prof. Haruna Ibrahim**

Dean, School of Agronomy & Forestry Technology, FUT Minna; National President, Seed Scientists Association of Nigeria. Expert in seed science, fruit production, and mother-plant management.

### **4. Prof. J. B. Ogunremi**

Professor of Aquaculture & Fisheries Extension, Federal University Wukari. Expert in aquaculture systems, fisheries management, and extension.

### **5. Prof. O. I. Faleyimu**

Forestry & wildlife management expert, OAUSTECH. Focus on forest conservation and biodiversity management.

### **6. Prof. Adeyinka Adeniyi Odunsi**

Animal nutrition & biotechnology scholar, LAUTECH. Expert in feed formulation and sustainable poultry nutrition.

### **7. Prof. O. A. Olafadehan**

Animal scientist, University of Abuja. Expert in ruminant nutrition and feed efficiency.

### **8. Prof. S. O. E. Sadiku**

Aquaculture & water resources expert; former DVC Academic, FUT Minna. Focus on aquatic ecosystem management and fish production systems.

### **9. Prof. Amosa Isiaka Gambari**

Dean, School of Science & Technology Education, FUT Minna. Expert in instructional technology and digital learning systems.

### **10. Prof. Abiodun Ogundeji**

Director, DiMTEC, University of the Free State, South Africa. Applied economist; former FAO research fellow; over 70 publications. **(International Advisory Board)**

### **11. Prof. Jane B. Smith**

Professor of Agricultural Economics, University of Pretoria. Internationally recognized expert in agricultural policy, food security, and agribusiness. **(International Advisory Board)**

## 12. Dr. Bernd Müller

Research Associate, HSWT Germany; Erasmus+ and DAAD project lead. Expert in food supply chain management and international academic partnerships. (**International** Advisory Board)

## **General Information about the Journal of Agriculture and Agricultural Technology (JAAT)**

JOURNAL OF AGRICULTURE AND AGRICULTURAL TECHNOLOGY (JAAT)

### **Journal Policies, Editorial Guidelines and Publication Ethics**

#### **Publisher**

School of Agronomy and Forestry Technology, School of Agricultural Management and Extension Technology and School of Food Science and Agricultural Technology, Federal University of Technology, Minna PMB 65, Minna, Niger State, Nigeria

**ISSN (Print):** 1597-5460

### **1. About the Journal**

The **Journal of Agriculture and Agricultural Technology (JAAT)** is an international, peer-reviewed, open-access scholarly journal published by the **School of Agriculture and Agricultural Technology (SAAT), Federal University of Technology, Minna, Nigeria**. Established in 2002s through the pioneering efforts of **Professor T. Z. Adama**, JAAT provides a reputable platform for the publication and dissemination of high-quality, original, and impactful research that advances scientific knowledge, technological innovation, and sustainable development in agriculture and allied disciplines.

The journal is dedicated to promoting interdisciplinary scholarship that addresses global challenges relating to food security, agricultural productivity, climate change adaptation, environmental sustainability, natural resource management, rural development, and emerging agricultural technologies. JAAT serves researchers, academics, industry professionals, policymakers, extension practitioners, development partners, and postgraduate students by facilitating the exchange of scientific knowledge that contributes to evidence-based decision-making and sustainable agricultural transformation.

The journal publishes only manuscripts that demonstrate scientific rigor, originality, ethical integrity, and significant contributions to knowledge.

### **2. Vision**

To become a globally recognized scholarly journal that publishes innovative, high-impact research contributing to sustainable agricultural development, technological advancement, and environmental stewardship.

### 3. Mission

The mission of JAAT is to disseminate quality scientific knowledge through a transparent, ethical, and rigorous peer-review process while promoting excellence in agricultural research, innovation, education, technology transfer, and policy development.

### 4. Aim and Scope

JAAT publishes original research articles, review articles, short communications, technical notes, case studies, methodological papers, and invited reviews covering fundamental, applied, and interdisciplinary research in agriculture, agricultural technology, food systems, natural resources, and environmental sciences.

The journal welcomes manuscripts in, but is not limited to, the following subject areas.

#### 4.1 Crop Science, Horticulture, Forestry, and Soil Management

- Agronomy and crop production
- Plant breeding, genetics, and biotechnology
- Crop physiology and crop protection
- Horticultural science and plantation crops
- Forestry and forest resource management
- Weed science and integrated pest management
- Soil science, fertility, conservation, and microbiology
- Precision crop production
- Climate-smart and sustainable agriculture

#### 4.2 Animal Science and Livestock Production

- Animal breeding, genetics, and genomics
- Animal nutrition and feed science
- Livestock physiology and reproduction
- Animal health, welfare, and behaviour
- Pasture and forage production
- Poultry, dairy, beef, sheep, goat, swine, rabbit, and emerging livestock production systems
- Precision livestock farming and smart animal production technologies
- Livestock product processing and value addition
- Climate-resilient livestock production systems

#### 4.3 Fisheries, Aquaculture, and Aquatic Sciences

- Aquaculture production systems
- Fish breeding, nutrition, and genetics
- Fish health and disease management
- Fisheries management and aquatic ecology
- Fish processing, preservation, and post-harvest technology
- Aquatic environmental management

#### 4.4 Agricultural Engineering and Emerging Technologies

- Farm power and mechanization

- Agricultural machinery and equipment
- Precision agriculture
- Digital agriculture and smart farming systems
- Agricultural automation, robotics, and artificial intelligence
- Sensor technologies and Internet of Things (IoT)
- Irrigation and water management systems
- Post-harvest engineering and storage technologies
- Renewable and bioenergy systems

#### 4.5 Food Science, Nutrition, and Agro-processing

- Food chemistry and food microbiology
- Food processing and preservation
- Dairy science and technology
- Functional foods and nutraceuticals
- Food engineering and food packaging
- Food safety, quality assurance, and food security
- Post-harvest technology and value addition
- Nutrition and public health

#### 4.6 Agricultural Economics, Agribusiness, and Extension

- Agricultural economics and farm management
- Agribusiness and entrepreneurship
- Agricultural marketing and value chains
- Rural development and livelihood systems
- Agricultural finance and policy analysis
- Agricultural extension and innovation systems
- Gender, youth, and social inclusion in agriculture
- Agricultural trade and development economics

#### 4.7 Environmental and Natural Resource Management

- Environmental management and sustainability
- Environmental impact assessment
- Agroecology and biodiversity conservation
- Climate change adaptation and mitigation
- Circular bioeconomy and waste valorization
- Natural resource management
- Water resources and watershed management

Renewable energy for sustainable agriculture

### 5. Editorial Policy

JAAT is committed to maintaining the highest standards of scholarly publishing by ensuring that all manuscripts are evaluated solely on their scientific merit, originality, methodological quality, ethical integrity, clarity of presentation, and relevance to the journal's scope.

The journal encourages multidisciplinary and interdisciplinary research that advances sustainable agriculture, technological innovation, food security, environmental conservation, and socio-economic development.

Editorial decisions are made independently without discrimination based on nationality, institutional affiliation, gender, race, religion, or political beliefs.

## 6. Editorial and Peer Review Process

JAAT operates a **double-blind peer review system** in which the identities of both authors and reviewers remain confidential throughout the review process to ensure fairness, impartiality, and objectivity.

Each manuscript undergoes the following stages:

**Stage 1:** Manuscript submission through the journal's submission system.

**Stage 2:** Initial editorial screening by the Editor-in-Chief or an assigned Associate Editor to evaluate:

- Scope
- Originality
- Scientific quality
- Ethical compliance
- Manuscript preparation

**Stage 3:** Manuscripts meeting the journal's requirements are assigned to **at least two independent reviewers** possessing expertise in the relevant subject area.

Reviewers evaluate manuscripts based on:

- Originality
- Scientific contribution
- Methodological soundness
- Statistical analysis
- Ethical compliance
- Interpretation of findings
- Presentation quality
- Relevance

Based on reviewers' reports, the Editor-in-Chief makes one of the following decisions:

- Accept
- Minor Revision
- Major Revision
- Reject

Where necessary, revised manuscripts may undergo a second round of peer review.

All editorial decisions are final.

## 7. Publication Ethics

The **Journal of Agriculture and Agricultural Technology (JAAT)** is committed to maintaining the highest standards of integrity, transparency, and ethical conduct in scholarly publishing. The journal expects authors, reviewers, editors, and members of the Editorial Board

to uphold internationally recognized principles of research integrity and publication ethics throughout the submission, peer-review, editorial, and publication processes.

JAAT is committed to preventing and addressing all forms of publication malpractice, including plagiarism, duplicate publication, redundant publication, data fabrication, data falsification, inappropriate authorship, citation manipulation, image manipulation, undisclosed conflicts of interest, and other forms of research misconduct.

The journal will investigate all allegations of publication misconduct fairly, objectively, confidentially, and promptly. Where misconduct is confirmed, appropriate editorial actions, including manuscript rejection, publication of corrections, retractions, expressions of concern, notification of authors' institutions, or other corrective measures, shall be taken to protect the integrity of the scholarly record.

All parties involved in the publication process are expected to act with honesty, fairness, confidentiality, accountability, and professionalism.

## 8. Plagiarism Policy

JAAT operates a **zero-tolerance policy** towards plagiarism and all forms of academic misconduct.

All manuscripts submitted to the journal are screened using recognized plagiarism detection software before they are considered for peer review. Authors are expected to submit original work that has not been previously published and is not under consideration for publication elsewhere.

The following constitute unacceptable publication practices:

- Direct plagiarism.
- Mosaic or patchwork plagiarism.
- Self-plagiarism or duplicate publication without appropriate disclosure.
- Fabrication or falsification of research data.
- Manipulation of images or figures.
- Citation manipulation.
- Submission of substantially similar manuscripts to multiple journals simultaneously.

Where plagiarism or other unethical practices are detected before publication, the manuscript shall be rejected. Where such misconduct is discovered after publication, JAAT reserves the right to publish corrections, issue retractions, notify relevant institutions or funding agencies, and take any other appropriate editorial action.

Authors bear full responsibility for ensuring the originality and authenticity of their submitted work.

## 9. Conflict of Interest Policy

JAAT is committed to ensuring transparency and maintaining public confidence in the integrity of published research.

Authors, reviewers, editors, Editorial Board members, and guest editors must disclose any financial, professional, institutional, commercial, or personal relationships that could influence, or reasonably be perceived to influence, the objectivity of the research, peer-review process, or editorial decision-making.

Examples of potential conflicts of interest include, but are not limited to:

- Employment relationships.
- Consultancy arrangements.
- Ownership of shares or stocks.
- Patent applications.
- Research grants.
- Honoraria.
- Personal relationships.
- Institutional affiliations.
- Membership of advisory boards.

Authors must include a **Conflict of Interest Statement** within their manuscripts.

Where no conflict exists, authors should state:

**The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.**

Reviewers and editors who identify a potential conflict of interest must immediately declare it and recuse themselves from handling the manuscript where appropriate.

## Editorial Message

# Journal of Agriculture and Agricultural Technology (JAAT)

Volume 15, Issue 2 | June 2026 | Quarterly Edition

ISSN: 1597-5460

**Dear Esteemed Readers, Scholars, Authors, Reviewers, and Contributors,**

The Editorial Board of the *Journal of Agriculture and Agricultural Technology (JAAT)* is delighted to present Volume 15, Issue 2 (2026). This issue represents another important milestone in the continuing development of the journal and reflects our sustained commitment to advancing high-quality research, innovation, knowledge exchange, and scholarly communication in agriculture and agricultural technology.

As JAAT continues its quarterly publication schedule, we remain committed to ensuring that scientifically rigorous and practically relevant research is communicated to researchers, academics, practitioners, policymakers, development partners, and other stakeholders in a timely manner.

## A Renewed Editorial and Advisory Leadership

A major feature of this issue is the reinvigoration of the JAAT Editorial Board and Advisory Board. The journal has strengthened its academic and professional leadership through the engagement of scholars with diverse expertise spanning agricultural sciences, animal production, crop science, food science and technology, agricultural economics, agricultural extension, horticulture, fisheries and aquaculture, forestry and wildlife, agricultural education, and related fields.

The renewed Editorial Board brings together experienced scholars and emerging academic leaders from Nigeria and international institutions, thereby strengthening the disciplinary breadth, geographic diversity, and international outlook of JAAT.

The journal is equally pleased to have a strengthened International Advisory Board, comprising distinguished academics and professionals whose experience in research, higher education, agricultural development, scientific publishing, policy, and international collaboration will provide strategic guidance as JAAT continues to expand its scholarly visibility and impact.

This renewed structure is intended to enhance the journal's editorial capacity, strengthen peer-review standards, promote ethical scholarly publishing, and broaden opportunities for international collaboration.

## Highlights of Volume 15, Issue 2

This issue presents scholarly contributions addressing contemporary challenges and opportunities across agriculture and agricultural technology. The breadth of research represented in JAAT reflects the increasingly interdisciplinary nature of agricultural development and the need for integrated approaches to food production, environmental sustainability, technology adoption, and rural transformation.

JAAT continues to encourage research that contributes to sustainable crop and livestock production, agricultural innovation, food and nutrition security, climate-smart agriculture, value addition, agricultural economics, rural development, and emerging agricultural technologies.

Through its continuing digital publishing initiatives, the journal seeks to improve the accessibility, visibility, and dissemination of published research. JAAT remains committed to strengthening its digital presence and ensuring that scholarly contributions are accessible to a wider international academic and professional community.

## **Strengthening Quality and Scholarly Integrity**

The reinvigorated Editorial and Advisory Boards reinforce JAAT's commitment to maintaining high standards of academic quality, transparency, integrity, and responsible scholarly publishing.

The journal recognizes that the credibility of academic publishing depends fundamentally on a rigorous and fair peer-review process. Accordingly, we remain grateful to our reviewers for their careful assessment of manuscripts, constructive recommendations to authors, and invaluable contribution to maintaining the scientific quality of the journal.

The Editorial Board will continue to strengthen editorial processes, improve manuscript evaluation and decision-making, encourage adherence to publication ethics, and promote continuous improvement in the quality and presentation of published research.

## **Appreciation and Acknowledgements**

On behalf of the *Journal of Agriculture and Agricultural Technology*, I express sincere appreciation to all those who have contributed to the continued growth and development of the journal.

We warmly welcome and appreciate our reinvigorated Editorial Board Members and International Advisory Board Members, whose expertise, commitment, and scholarly leadership will contribute significantly to the next phase of JAAT's development.

We are equally grateful to our peer reviewers, whose voluntary academic service remains central to the integrity and credibility of the journal.

Most importantly, we thank our authors and readers. The confidence of authors in submitting their work to JAAT and the continued engagement of our readers provide the foundation upon which the journal continues to grow.

## **Looking Ahead: Consolidating JAAT's International Outlook**

As JAAT moves forward, the journal will continue to pursue a clear vision of becoming an increasingly recognized platform for the dissemination of innovative, scientifically sound, and development-oriented agricultural research.

Particular attention will be given to expanding international authorship and readership, strengthening collaborations with researchers and institutions across Africa and beyond,

improving the efficiency and quality of the peer-review process, and promoting research that responds to pressing challenges in food systems and agricultural development.

The journal will also continue to encourage multidisciplinary research and emerging areas of agricultural science and technology, including climate-smart agriculture, precision agriculture, artificial intelligence, sustainable livestock production, agricultural biotechnology, digital agriculture, food technology, agricultural innovation, and data-driven agricultural systems.

We believe that the renewed Editorial and Advisory Board provides a strong foundation for this next phase of JAAT's development.

## An Invitation to the Agricultural Research Community

We therefore warmly invite researchers, academics, postgraduate students, practitioners, policymakers, extension professionals, industry stakeholders, and development partners to continue to engage with JAAT by submitting high-quality original research, reviews, technical contributions, and other scholarly works relevant to agriculture and agricultural technology.

Your contributions will help strengthen the body of knowledge required to address the complex agricultural, environmental, technological, and food-security challenges confronting Africa and the wider world.

### Closing Remarks

**Volume 15, Issue 2** is more than another issue of the journal; it represents a continuation of JAAT's journey toward greater scholarly excellence, stronger international engagement, and increased contribution to agricultural knowledge and innovation.

With the support of our renewed Editorial Board, strengthened International Advisory Board, dedicated reviewers, contributing authors, institutional partners, and loyal readers, we look forward to building a stronger, more visible, and more impactful *Journal of Agriculture and Agricultural Technology*.

**Thank you for being part of the JAAT journey.**

**Yours sincerely,**



Prof Olushola John Alabi

Editor-in-Chief

*Journal of Agriculture and Agricultural Technology (JAAT)*

Federal University of Technology, Minna, Nigeria

## CONTENTS

|                                                                                                                                                                                             |     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| ASSESSMENT OF FARM MACHINERY UTILIZATION AND TURNOVER RATIO<br>PATTERN IN IRRIGATION SCHEMES OF KWARA AND KOGI STATES (A Case of Lower<br>Niger River Basin Development Authority, Nigeria) | 2   |
| EFFECTS OF CLIMATE-SMART AGRICULTURAL (CSA) TECHNOLOGIES ON MAIZE<br>PRODUCTION IN NIGER STATE, NIGERIA                                                                                     | 28  |
| EFFECT OF DIETARY SOYBEAN CHEESE WASTE ON GROWTH PERFORMANCE,<br>NUTRIENT RETENTION, AMINO ACID PROFILE AND MEAT QUALITY OF RABBITS                                                         | 49  |
| TOPOGRAPHIC INFLUENCE ON SOIL VARIABILITY AND AGRICULTURAL<br>SUITABILITY ALONG A TOPOSEQUENCE IN NORTEASTERN NIGERIA                                                                       | 66  |
| CHARACTERIZATION AND CLASSIFICATION OF CRESTAL SOILS IN BOKI, CROSS<br>RIVER STATE – NIGERIA                                                                                                | 89  |
| EVALUATION OF CONCENTRATE DIET CONTAINING UREA AND MULTI-ENZYME<br>PRETREATED CORN COBS FOR RUMINANT NUTRITION USING <i>IN VITRO</i> GAS<br>PRODUCTION TECHNIQUE                            | 113 |
| EFFECTS OF CASHEW ( <i>Anacardium occidentale</i> L.) LEAF EXTRACT INCLUSION ON<br>GROWTH PERFORMANCE AND HAEMATOLOGICAL INDICES OF BROILER<br>CHICKENS                                     | 126 |
| CHILDREN’S INVOLVEMENT IN RURAL MARKET LABOUR ACTIVITIES IN OSUN<br>STATE, NIGERIA: A GENDER PERSPECTIVE                                                                                    | 141 |
| INTERACTIVE EFFECTS OF RHIZOBIA STRAIN AND ENVIRONMENT ON SOYBEAN<br>PRODUCTIVITY AND NITROGEN FIXATION IN THE NORTHERN GUINEA SAVANNA<br>OF NIGERIA                                        | 161 |